Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 4A and 5A. These sheets, which include Figures 4A and 5B, replace the original sheets including Figures 4A and 5A. In Figure 4A, previously omitted text has been added. In Figure 5A, the text "INTERFACE LIST 515" is changed to "INTERFERENCE LIST 515"

Attachment: Replacement Sheets
                        Annotated Sheets Showing Changes

REMARKS/ARGUMENTS

Claims 1-40 are pending in the present application.

This Amendment is in response to the Office Action mailed January 2, 2009. In the Office Action, the Examiner rejected claims 25 (26-36) under 35 U.S.C. §101; claims 25-36 under 35 U.S.C. §112; claims 1-36 under 35 U.S.C. §103(a). Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Request for clarification

Applicant notes that the Office Action contains missing information and/or incorrect or typographical errors as follows:

a) Status of claims 37-40: The Examiner did not clearly state the status of claims 37-40.

b) Page 6, paragraph 9 states that the rejection is under 35 USC 102(e) while the heading is 35 USC 103.

c) Page 13, paragraph 9 states that claims 11, 23, and 35 are rejected under <u>Ayyagari</u> and <u>Andric</u> in view of <u>Barber</u>, but the following paragraphs discuss <u>Nanda</u>. Applicant assumes that <u>Barber</u> was incorrectly cited and the correct reference is <u>Nanda</u>.

Applicant respectfully requests the Examiner to clarify the above points.

Objection to the drawings

In the Office Action, the Examiner objected to the drawings under 37 CFR 1.83(a). Applicant has amended Figures 4A and 5A. Accordingly, Applicant requests the objection be withdrawn.

Rejection Under 35 U.S.C. § 101

In the Office Action, the Examiner rejected claims 25-36 under 35 U.S.C. §101. The Examiner contends that the claimed invention is directed to non-statutory subject matter. Applicant respectfully disagrees for the following reasons.

First, Claims 25-36 are Beauregard-type claims which recite an article of manufacture that comprises a machine-accessible storage medium. A claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional

interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035; MPEP 2106.01.I. Computer programs are often recited as part of a claim. USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, **the claim remains statutory irrespective of the fact that a computer program is included in the claim**. MPEP 2106.01.I (Emphasis added.) Such a Beauregard claim has been determined statutory. *In re Nuijten*, 500 F.3d 1346 (Fed. Cir., 2007) ("It has been the practice for a number of years that a 'Beauregard Claim' of this nature be considered statutory at the USPTO as a product claim."). Accordingly, claims 26-30 are statutory.

Second, paragraph [0104] recites, in part, "[t]he program or code segments can be stored in a processor **or** machine accessible medium **or** transmitted by a computer data signal embodied in a carrier wave, **or** a signal modulated by a carrier, over a transmission medium. The "processor readable or accessible medium" **or** "machine readable or accessible medium" may include any medium that can store, transmit, **or** transfer information. (Emphasis added.) The description provides alternative embodiments. Applicant does not have to claim all of the alternative embodiments. Applicant elects to claim the storage medium which is clearly statutory.

Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §101 be withdrawn.

Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 25-36 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner contends that claim 25 is vague and indefinite because it is unclear how a medium can include data. Applicant respectfully disagrees for the following reasons.

As discussed above in the 35 U.S.C. §101 rejection, the specification describes alternative embodiments. Claims 25-36 recites a "storage medium". Clearly, a storage medium can store data.

Furthermore, claims should be interpreted consistently with the specification, which provides content for the proper construction of the claims because it explains the nature of the patentee's invention. See *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243,1250, 48 USPQ 2d (BNA) 1117 (Fed. Cir. 1998). MPEP 2111. The article of manufacture and the machine-accessible storage medium claim language is fully supported in the specification. See, for example, paragraphs [0108] – [0109]. The specification provides that examples of the processor readable or machine accessible medium include an electronic circuit, a semiconductor memory device, a read only memory (ROM), a flash memory, an erasable ROM (EROM), a floppy diskette, a compact disk (CD) ROM, an optical disk, a hard disk, etc. It is well known that these media can store data.

Moreover, the general test for determining whether a claim meets the definiteness requirement is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. *Process Control Athletic Alternatives, Inc. v. Prince Manufacturing, Inc., 73 F.3d 1573, 1581.* The Examiner has not shown that one skilled in the art would not understand the bounds of the claim when read in light of the specification.

Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §112 be withdrawn.

Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1, 3-8, and 10-13, 15-20, and 22, 24-25, 27-32, 34, and 36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2004/0174829 issued to Ayyagari ("Ayyagari") in view of U.S. Publication No. 2004/0174829 issued to Andric et al. ("Andric"); claims 2, 9, 14, 21, 26, and 33 under 35 U.S.C. §103(a) as being unpatentable over Ayyagari, and Andric as applied to claims 1, 13, 25, and 37, and further in view of U.S. Publication No. 2005/0073979 issued to Barber et al. ("Barber"); and claims 11, 23, and 35 under 35 U.S.C. §103(a) as being unpatentable over Ayyagari, and Andric as applied to claims 1, 13, and 37, and further in view of U.S. Publication No. 2005/0192037 issued to Nanda et al. ("Nanda");. Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a prima facie case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP §2143, p. 2100-126 to 2100-130 (8th Ed., Rev. 5, August 2006).* Applicant respectfully submits that there is no suggestion or motivation to combine their teachings, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." MPEP 2141. In *KSR International Co. vs. Teleflex, Inc.*, 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." The Court further required that an explicit analysis for this reason must be made. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR 127 S.Ct.* at 1741, quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In the instant case, Applicant respectfully submits that there are significant differences between the cited references and the claimed invention and there is no apparent reason to combine the known elements in the manner as claimed, and thus no *prima facie* case of obviousness has been established.

1. Claims 1, 3-8, and 10-13, 15-20, and 22, 24-25, 27-32, 34, and 36:

Ayyagari discloses a centralized network organization and topology discovery in ad-hoc network with central controller. The network in its operational mode consists of host nodes, a designated controller for the network called the Central Coordinator (CCo), and where

appropriate, a set of Proxy Coordinators (PCo) to communicate with nodes that cannot directly communicate (in one link) with the CCo, or with other nodes in the network (Ayyagari, par. [0025]). The CCo periodically initiates a node discovery process. Every known node is allowed to transmit a DISCOVERY_MSG message in a contention free mode, using an allocation (frequencies and time slots) granted by the CCo. The DISCOVERY_MSG can simply contain the MAC address/TEI (Temporary Equipment Identifier) of the source device, or it may also contain the Frame number and time slots for future contention periods that follow the end of the Discovery interval (Ayyagari, par. [0055], lines 1-9). Activity Indicator is an optional parameter indicating how busy a device is, in terms of its duty cycle (Ayyagari, par. [0064], lines 12).

Andric discloses a protocol and structure for mobile nodes in a self-organizing communication network. A node includes a receiver 430, processor 440, router 450, storage 470, and transmitter 480 (Andric, paragraph [0212]; Figure 75). If a cluster head receives the NETWORK TOPOLOGY UPDATE message and determines that a different parent cluster is linked to the cluster, it changes the parent cluster as indicated in the message (Andric, paragraph [0128]).

Ayyagari and Andric, taken alone or in any combination, do not disclose or render obvious, at least one of: (1) a frame module to process a frame containing information regarding a local node in a first network, the information including discovery information and network state information, the discovery information being represented in a common description, the network state information including at least one of network configuration, network status, and network history; (2) an information module coupled to the frame module to manage the information; (3) a communication module coupled to the frame module and the information module to manage communication between the local node and a remote node in a second network using the information.

First, Ayyagari merely discloses the START_DISCOVERY_MSG transmitted by the CCo to indicate the beginning of a DISCOVERY period (Ayyagari, par. [0060]) and the CCO_NETCONFIG_MSG transmitted by a new device that has been selected as the new CCo or by the current CCo itself after network organization is completed (Ayyagari, par. [0070]), not a frame module to process a frame containing information regarding a local node in a first network, the information including discovery information and network state information. As

discussed above, the information in the DISCOVERY_MSG and the CCO_NETCONFIG_MSG are not contained within a single frame. Thus, there is no teaching of "a frame containing information... including discovery information and network state information."

Second, Ayyagari merely discloses every other node listening to DISCOVER_MSG transmissions and updating its DISCOVERED_NODE_LIST (Ayyagari, par. [0055]) and the topology table of the CCo being a tabulation of the DISCOVERED_NODE_LISTS for all nodes (Ayyagari, par. [0076]), not an information module to manage the information, as recited in claim 1. As discussed above, given that the Examiner alleges the network information is contained in the CCO_NETCONFIG_MSG, CCo cannot be the information module since the topology table does not account for the CCO_NETCONFIG_MSG information.

Furthermore, the Examiner interprets the CCo as the frame module and as the information module (Office Action, page 7). However, the CCo cannot be both frame module and information module because they perform different functions as discussed above.

Third, Ayyagari merely discloses viable interconnections between nodes relating to two illustrative organizations, such as interconnection 40 between C and D (Ayyagari, par. [0043], lines 7-10; Fig. 1, ref. 40), not a communication module coupled to the frame module and the information module to manage communication using the information, as recited in claim 1. A viable interconnection is a communication link that may be created between nodes C and D. In contrast, communication module 230 manages communication between the IW node and a remote node in a second IW network and receives the IW information from the information module 220 (See, for example, Specifications, par. [0035]). A communication link is merely a connection to connect two nodes. It does not have the ability to manage the communication between the two nodes.

Regarding Andric, the Examiner contends that Andric discloses a communication module, citing Andric, paragraph [0212], and state information including at least one of network configuration, network status, and network history, citing Andric, paragraph [0128]. Applicant respectfully disagrees and submits that the cited paragraphs do not provide support for the Examiner's contention for the following reasons.

For ease of reference, the cited paragraphs are copied below.

"Referring to FIG. 75, a functional block diagram 400 of the internal operation of a node operable for the network of the present invention is shown. The basic functionality received in receiver 430, processor 440, router 450, storage 470, and transmitter 480 of the diagram are applicable to the various types of nodes, including MNs, NN, CH, gateway nodes, and network coordinator nodes, of the network, with variations in control and processing functionality, outlined above, being incorporated. **Incoming messages 410 are first received by message receiver 430**, which then prepares the incoming messages 410 for processing by message processor 440. **Message processor 440 interacts with storage block 470, audio/visual indicator 460, and message router 450 in order to correctly process incoming messages 410**. Node 400 also contains message transmission 480 (receiver) capability that allows nodes 400 to prepare outgoing messages 420 created by either message router 450 or message processor 440. The outgoing messages 420 could include status messages, routed data messages, messages to nodes within communication range of nodes 400, or any similar type of message traffic, again depending upon the type of node at issue." (Andric, paragraph [0212]. *Emphasis added.*).

"If a cluster head receives the NETWORK TOPOLOGY UPDATE message and determines that a different parent cluster is linked to the cluster, it **changes the parent cluster as indicated in the message**. All nodes within the cluster should memorize its parent cluster, child/lower clusters and the border nodes' NID at this time." (Andric, paragraph [0128]. *Emphasis added*).

As seen from the above, Andric merely discloses a message receiver 430 receives incoming messages 410 and prepares them for processing by message processor 440 (Andric, paragraph [0212]), not a communication module to manage communication between the local node and a remote node in a second network using the information. The receiver 430 merely receives the incoming messages 410. Receiving messages merely accepts the messages. It does not manage communication between the local node and a remote node. Furthermore, the message processor 440 merely interacts with storage block 470, audio/visual indicator 460, and message router 450 to correctly process incoming messages 410. It does not manage the communication using the information. The storage block 470, or the audio/visual indicator 460, or the message router 450 does not contain the information including discovery information and network state information.

Furthermore, Andric merely discloses a network topology update message (Andric, paragraph [0128]), not the network state information including at least one of network configuration, network status, and network history. When a cluster head receives this message, it merely changes the parent cluster as indicated in the message. The network topology update therefore only refers to the parent cluster. It is not related to the network configuration, network status, and network history.

2. Claims 2, 9, 14, 21, 26, and 33:

Ayyagari and Andric are discussed above.

Barber discloses a visitor gateway in a wireless network. The 802.11 MAC defines special functional behavior for fragmentation of packets, medium reservation via RTS/CTS (request-to-send/clear-to-send) polling interaction, and point coordination (for time-bounded services) (Barber, par. [0012]).

Ayyagari, Andric, and Barber, taken alone or in any combination, do not disclose or render obvious, at least one of: (1) – (3) as above; (4) a frame builder to build the frame containing the information; (5) a frame transmitter coupled to the frame builder to transmit the frame to another local node in the first network or the remote node in the second network; (6) a frame poller coupled to the frame transmitter to provide a polling frame requesting for information of the remote node; and (7) a frame receiver to receive another frame from another local node in the first network or to receive a remote frame from the remote node

Ayyagari merely discloses the DISCOVERY_MSG broadcast by the nodes and CCO_NETCONFIG_MSG transmitted by the CCo or a new device selected as CCo (Ayyagari, par. [0057-0064]; par. [0070]), not a frame builder to build the frame containing the information. As above, Ayyagari does not disclose a frame containing information… including discovery information and network state information, let alone, a frame builder to build the frame, a frame transmitter to transmit the frame, or a frame receiver to receive another frame, as recited in claims 2, 14, and 26.

In addition, with respect to the frame transmitter, Ayyagari merely discloses the BEACON_MSG being transmitted by the CCo periodically (Ayyagari, par. [0058]). The BEACON_MSG carries the identity of the transmitting device and may include the START_DISCOVERY_MSG (Ayyagari, par. [0058-0060]). Since the BEACON_MSG does

not include the network state information, allegedly the CCO_NETCONFIG_MSG, or the discovery information, allegedly the DISCOVERY_MSG, the BEACON_MSG cannot be the frame transmitted by the frame transmitter. Moreover, the Examiner alleges that the CCo is the frame transmitter (Office Action, page 11, paragraph 9). Previously, the Examiner alleged that the CCo was also the frame module and the information module. Each of these modules performs different functions such that they cannot all be the same module.

As discussed above, Ayyagari and Andric do not disclose or render obvious elements (1) – (3) as above. Accordingly, a combination of Ayyagari and Andric with any other references in rejecting claims 2, 9, 14, 21, 26, and 33 is improper.

Furthermore, Barber merely discloses that MAC defines special functional behavior for fragmentation of packets, medium reservation via RTS/CTS polling interaction (Barber, par. [0012], lines 17-20), or tunnel 1204 packages up traffic between visitor clients (Barber, par. [0103], lines 6-7), not a frame poller to provide a polling frame requesting for information of the remote node, or a frame transmitter to transmit the frame to another local node in the first network or the remote node in the second network, or a frame receiver to receive another frame from another local node in the first network or to receive a remote frame from the remote node.

In the Office Action, the Examiner contends that the background of Barber teaches the use of interaction (Office Action, page 12, first paragraph). However, the background merely discloses RTS/CTS (request-to-send/clear-to-send) polling interaction (Barber, paragraph [0012]). The RTS/CTS protocol is merely used to reduce frame collisions. The RTS (request to send) frame is used to initiate a data transmission. The CTS (Clear to Send) is a reply to the RTS from the destination. The RTS/CTS protocol therefore merely involves two nodes that wish to transmit and receive frames. It does not involve requesting discovery information. Regarding the tunnel, it merely transports traffic to a firewall to allow a visitor client to access the Internet (Barber, par. [0103], lines 7-10). It does not transmit or receive a frame as recited in claims 2, 14, and 26. In fact, Barber specifically discloses that the tunnel does not send or receive traffic to or from the LAN (Barber, par. [0103], lines 10-11). Accordingly, Barber teaches away from the invention because traffic is not sent or received to or from the LAN.

3. Claims 11, 23, and 35:

Ayyagari and Andric are discussed above.

Nanda discloses distributed hierarchical scheduling in an AD hoc network. A message decoder decodes one or more first interference lists from coordination messages contained in the one or more received signals from respective one or more remote devices (Nanda, paragraphs [0010], [0013]). An interference list field comprises a list of interfering remote stations, a transmit allocation field comprising one or more allocations for transmission by a child remote station on a shared medium, and a receive allocation field comprising one or more allocations for receiving by a child remote station on a shared medium (Nanda, paragraph [0014]). A coordination message may include system information, the superframe period and start time, a contention period (if applicable), and an interference list (Nanda, paragraph [0065]). An interference list may contain a list of identifiers, each identifier associated with a remote device such as a BMS (Nanda, paragraph [0071]).

As discussed above, Ayyagari and Andric do not disclose or render obvious elements (1) – (3) as above. Accordingly, a combination of Ayyagari and Andric with any other references in rejecting claims 11, 23, and 35 is improper.

Furthermore, Nanda merely discloses a message decoder decoding one or more first interference lists from coordination messages contained in the one or more received signals from respective one or more remote devices (Nanda, paragraphs [0010], [0013]). The interference list is not included as part of the network state information

The Examiner failed to establish a prima facie case of obviousness and failed to show there is teaching, suggestion, or motivation to combine the references. When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Col, Inc.,* 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986). "When determining the patentability of a claimed invention which combined two known elements, 'the question is whether there is something in the prior art as a whole suggest the desirability, and thus the obviousness, of making the combination.'" *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992), 24 USPQ2d 1040; *Lindemann Maschinenfabrik GmbH v. American*

Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ (BNA) 481, 488 (Fed. Cir. 1984). To defeat patentability based on obviousness, the suggestion to make the new product having the claimed characteristics must come from the prior art, not from the hindsight knowledge of the invention. *Interconnect Planning Corp. v. Feil*, 744 F.2d 1132, 1143, 227 USPQ (BNA) 543, 551 (Fed. Cir. 1985). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the Examiner to show a motivation to combine the references that create the case of obviousness. In other words, the Examiner must show reasons that a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the prior elements from the cited prior references for combination in the manner claimed. *In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1996), 47 USPQ 2d (BNA) 1453. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or implicitly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973. (Bd.Pat.App.&Inter. 1985). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Furthermore, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Mills*, 916 F.2d at 682, 16 USPQ2d at 1432; *In re Fritch*, 972 F.2d 1260 (Fed. Cir. 1992), 23 USPQ2d 1780.

Moreover, the Examiner failed to establish the factual inquires in the three-pronged test as required by the *Graham* factual inquires. There are significant differences between the cited references and the claimed invention as discussed above. Furthermore, the Examiner has not made an explicit analysis on the apparent reason to combine the known elements in the fashion in the claimed invention. Accordingly, there is no apparent reason to combine the teachings of Ayyagari, Andric, Barber and Nanda in any combination.

In the present invention, the cited references do not expressly or implicitly disclose any of the above elements. In addition, the Examiner failed to present a convincing line of reasoning as to why a combination of Ayyagari, Andric, Barber and Nanda is an obvious application of

inter-wireless interactions using user discovery for AD-HOC environments, or an explicit analysis on the apparent reason to combine <u>Ayyagari</u>, <u>Andric</u>, <u>Barber</u> and <u>Nanda</u> in the manner as claimed.

Therefore, Applicant believes that independent claims 1, 13, 25, and 37 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §103(a) be withdrawn.

Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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